



High-Resolution Commercial Satellite Imagery (CSI); Sensor Overview and USGS Activities

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Note: Commercial information is provided for overview purposes. The mention of specific companies does not represent their endorsement or promotion by USGS. Contact vendors to obtain authoritative information on launch dates, product offerings, and other business information.

U.S. Department of the Interior
U.S. Geological Survey

Recent Sensor Launch Events:

- November 20, 2000 – EarthWatch QuickBird sensor launches
 - ◆ QuickBird1 fails to reach orbit and is lost
 - ◆ Board of Directors opted to launch QuickBird1 in 3rd Quarter 2001
 - Tuesday December 5, 2000 – ImageSat successfully launches
 - ◆ 1.8/1.0 meter resolution panchromatic
 - ◆ 4-day revisit
 - ◆ Sun synchronous
 - Commerce Dept. has granted 1/2 meter resolution licenses to Space Imaging, ORBIMAGE and Earthwatch
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Current High-Resolution Systems:

- ImageSat (formerly West Indian Space) EROS A1
 - ♦ 1.8m/1.0m panchromatic
 - Space Imaging, IKONOS sensor
 - ♦ 1m panchromatic, 4m multispectral
 - Indian Remote Sensing (IRS) satellite
 - ♦ 5.8m panchromatic, 23 m multispectral
 - RADARSAT 1
 - ♦ 8m Synthetic Aperature Radar
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Planned CSI Systems:

2001

- ORBIMAGE OrbView4, 1m pan, 4m multispectral, 8m hyperspectral (8,8 and 5km swath respectively)
- EarthWatch QuickBird 2 , 0.6m pan, 2.5m multispectral, 16km swath

2002

- ORBIMAGE, OrbView3, 1m pan, 4m multispectral
- SPOT 5, 2.5-5m pan, 10m multispectral, 60-120km swath

2003

- RADARSAT 2, 3m, 25km swath, Synthetic Aperature Radar (SAR) RADAR
- ImageSat EROS B1, 1m pan

Note: most sensors are capable of stereo collection

Why High-Resolution* CSI?

- Unclassified
- Quality imagery for mapping, science, research
- Global reach
- All digital
- Regular revisit
- Assets on orbit
- Potentially lower costs (not there yet)

*High resolution means finer than 10 meters for the purpose of the presentation

USGS CSI Activities:

- **NIMA/NASA/USGS verification and validation**
- **Scientific applications at EROS Data Center**
- **Development of USGS policy framework**
- **Limited procurement services for other Federal agencies**
- **Industry overviews for other Federal agencies**

Potential USGS Applications:

- Disaster response and assessment
- Land use and land cover
- Geologic mapping and investigations
- Flood plain studies
- Alternate source for mapping programs:*
 - ◆ DOQ, DEM, DLG, NHD
 - ◆ Map Revision

*Dependent on favorable pricing and license options

Some Civilian Agency Concerns:

- ♦ Proprietary data rights
 - ♦ Limited operational experience with the sensors
 - ♦ Sensor validation in progress
 - ♦ Wide-area collection capacity
 - ♦ Limited archives to date
 - ♦ Delivery times and costs
 - ♦ Evolving imagery market
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Draft USGS Licensed Geospatial Data Policy - Key Points:

- ✦ NMP produces public domain data whenever possible
- ✦ Licensed data may sometimes be justified by cost savings, technical advantages, or currentness
- ✦ Contract terms must accommodate data use and distribution needs, including public benefit

Some follow-up contacts:

Government Commercial Imagery Contacts:

- NIMA Commercial Imagery Program (CIP) Customer Service - - 703-755-5511
- NIMA Civil and Commercial Applications Project (CCAP) - - 703-262-4345
- NASA Commercial Remote Sensing Program (CRSP)
<http://www.crsp.ssc.nasa.gov/>
- USGS EROS Data Center (EDC) - - 605-594-6551

Vendor Websites:

- Space Imaging <http://www.spaceimaging.com>
- ImageSat <http://www.imagesatintl.com/>
- Earthwatch <http://www.digitalglobe.com/>
- ORBIMAGE <http://www.orbital.com/>
- RadarSat
http://www.space.gc.ca/csa_sectors/earth_environment/radarsat/default.asp
- SPOT <http://www.spotimage.fr/spot-us.htm>

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